

Ryan, of Nhill (Victoria), spent two days in the Mallee fringe, where an interesting lot of birds were observed. The notes obtained will form the subject of a short paper in some future issue.]

Report on the Birds of Kangaroo Island: a Comparison with Mainland Forms.

BY A. G. CAMPBELL, MELBOURNE.

IT is difficult to believe that all forms of life have been evolved by the influence of differing conditions, though it seems obvious that numbers of species have had a common ancestor. In a general way there are influences creeping in which there are now no means of gauging, so far back are their beginnings, but it is most interesting to search out connections between allied forms of the present day.

One form in one locality is only worthy of being made a species separate and distinct from another form in another locality if its points are fairly constant. The characters of each must not grade toward and merge into one another, or they must be considered one and the same species.

Slight differences must be expected if the theory of origin by adaptation to environment holds good. For slight differences will in time become the more marked ones that differentiate species.

Where geological change has occurred and where a sea or a desert has crept in and divided two parts of a similar area, differences at first sight would become more and more distinct. Ultimately a species on one hand would be found with no connecting links to one on the other. This is still more marked if the break occurs on an east or west line, and if one section be forced to a more southern habitat than the other.

South-eastern Australia has its own quota of bird life. In Western Australia there are many species the relation of which to forms in the south-east can be distinctly seen. But they in most instances show some constant difference that makes them worthy of another specific name. Midway—that is, in South Australia—there might be expected some intermediate differences. But as these cannot be traced sufficiently it was with great interest that Kangaroo Island was searched. The results were not disappointing, for many forms distinctly worthy of being termed links between eastern and western species were discovered. This island has been locked up, so to speak, for many years, and was found to contain a good record of conditions that on the mainland have long since been interchanged away. It is interesting to record, too, that the affinity of Kangaroo Island birds is with those of Victoria, and not with those of South Australia, as might be expected.

For comparison the Passerine or perching birds can be examined, sea birds and other roving species being out of the question.

The results of these observations summarized are that Kangaroo Island supplies a link between the following respective species from South-eastern and Western Australia, namely :—*Petræca leggii* and *P. campbelli*, *Acanthiza pusilla* and *A. apicalis*, *Pachycephala gutturalis* and *P. occidentalis*, *Zosterops cerulescens* and *Z. gouldii*, *Meliornis novæ-hollandiæ* and *M. longirostris*, *Melithreptus brevirostris* (possibly) and *M. leucogenys*.

The affinity of the Island avifauna with that of South-eastern Australia (particularly Victoria) is shown by the inclusion of the five genera—*Geocichla*, *Megalurus*, *Meliornis*, *Zonæginthus*, and *Ægitha*, together with the abundance of the Honey-eater *Ptilotis leucotis*, and the Parrakeet *Platycercus elegans*. These are found very commonly on Kangaroo Island, but are not at all common in South Australia.

Another feature of the Kangaroo Island list is the absence of Tree-creepers (*Climacteris*) and Tree-runners (*Sittella*). This, if substantiated, is remarkable, seeing that these birds are looked upon as the universal protectors of forests against timber-boring insects. The Flower-pecker (*Dicaeum*) is not included. As in Tasmania so in Kangaroo Island there are no parasitical mistletoes (*Loranthus*), and this bird, the only known distributing agent, is not found in either locality.

Concerning the nomenclature for these intermediate or island forms, it is difficult to prescribe. I would suggest that the specific name *halmaturina* (meaning inhabiting Kangaroo Island—*Halmaturus* being the generic name for the wallabies or small kangaroos) be applied to *Acanthiza pusilla*, *Pachycephala gutturalis*, *Acanthorhynchus tenuirostris*, *Zosterops cerulescens*, and *Meliornis* (*Lichmera*) *australasiana*; and should subsequent research and more material warrant it, that the same name be also sub-specifically applied to *Collyriocincla harmonica*, *Petræca leggii*, *Geocichla lunulata*, and *Meliornis novæ-hollandiæ*.

The following is a complete list of (70 odd) species of birds that were noted by the members of the Aust. O.U. expedition:—

UROÆTUS AUDAX (Wedge-tailed Eagle).—A fine gorge on the Middle River, some five miles inland, was the home of a pair of these birds. Others were seen.

HALIÆTUS LEUCOGASTER (White-bellied Sea-Eagle).

FALCO LUNULATUS (Little Falcon).

CERCHNEIS CENCHROIDES (Kestrel).

PANDION LEUCOCEPHALUS (Osprey).—An aërie was visited, built upon a prominent outlying rock some 30 feet in height.



Black-winged Crow-Shrikes (*Strepera melanoptera*).

FROM A PHOTO. BY A. MATTINGLEY.

NINOX BOOBOOK (Boobook Owl).

CORONE AUSTRALIS (Raven).

STREPERA MELANOPTERA (Black-winged Crow-Shrike).—Many of this species were nesting in the sugar gum forests that exist within three miles of the coast, and a few pairs also were noted inland in the stringybark gums near the river courses. All had young in varying stages. One pair near our camp was photographed feeding their young at the nest. A very cold night killed these nestlings, when the parents immediately turned their attention to another young bird brought in by one of the party. They fed it regularly within a short distance of our quarters. The nestling has the primaries and particularly the secondary feathers of the wing tipped white, but the adult has the whole wing entirely black. See Plate XIII.

COLLYRIOCINCLA HARMONICA (Grey Shrike-Thrush).—One specimen obtained proves to have a much darker under surface than the mainland specimens, and no light throat or eyebrows. The light colour is confined to a loreal spot only.

GRAUCALUS MELANOPS (Black-faced Cuckoo-Shrike).—A pair found nesting in a sugar gum near our camp.

PETRECA LEGGII (? variety) (Scarlet-breasted Robin).—There is an interesting link between eastern and western forms. The Island bird has the breast colour of the eastern with the small cap of the western, thus combining the two. In most measurements, however, it is smallest.

	Length.	Bill.	Wing.	Tail.	Tarsus.	Dia. of Cap.
<i>P. leggii</i> , Vic. ...	5.3	.35	3.1	2.2	.75	.4
<i>P. leggii</i> , var. Kang. Id. ...	4.6	.4	2.85	2.0	.78	.3
<i>P. campbelli</i> , W.A. ...	5.0	.35	3.0	2.2	.8	.3

MALURUS CYANEUS (Blue Wren).—A single specimen obtained has an exceptionally long tarsus—.9 in.—and the wing coverts and primaries are a very deep Prussian blue colour. Blue Wrens were numerous.

RHIPIDURA ALBISCAPA (White-shafted Fantail).—This specimen has a very large and white ear-mark, the breast is darker, and the few white spots on the shoulder of the wing appear to link *R. albiscapa*, which is prominently spotted, with *R. diemenensis*, which is but seldom marked. This indicates that there is less difference between the two than warrants the latter being made a separate species.

SISURA INQUIETA (Restless Flycatcher).—Compare :

	Length.	Bill.	Wing.	Tail.	Tarsus.
<i>S. inquieto</i> , Vic. ...	7.7	.6	4.15	3.75	.65
<i>S. inquieto</i> , Kang. Id. ...	7.0	.7	4.2	3.6	.8
<i>S. nana</i> , N.W. Aust. ...	6.0	.75	3.4	3.0	.75

GEOCICHLA LUNULATA (? variety) (Ground-Thrush).—A single specimen procured was youthful, and has a short bill. Two other birds were noticed that had just left the nest, were being fed by their parents, and had a curious circlet of down still about the head.

This, however, approximates to the Tasmanian species, *G. macrorhyncha*, on account of its darker plumage. Both insular forms have the black crescent edging to the feathers of the upper surface broadest on the crown, while in *G. lunulata* the markings are narrowest in that part. About the breast, also, the crescent marks of the under parts become broader and form a thick dark patch.

MEGALURUS GRAMINEUS (Grass-Bird).—This was heard on the inland lagoons.

ACANTHIZA HALMATURINA (new species) (Dusky Tit).—There is a

constant difference between the island form and that of the mainland. The mantle is blackish, and not brownish-olive. The legs are black, and not brownish-black. The throat markings are heavier, while the forehead feathers at their bases are fawn-coloured, and not rufous. Indeed, though it lacks the white tips to the tail feathers, this island form approaches nearer *A. apicalis* of Western Australia than it does to *A. pusilla* of Victoria. Its measurements are:—Length, 3.9 in.; bill, .31 in. (two specimens were .4 in.); wing, 1.9 in.; tail, 1.6 in.; tarsus, .8 in. It inhabits the thick scrub upon the island, and does not venture into the gum-tree tops. One nest was discovered upon the heath lands, placed in a small bush about 1 foot high.

ACANTHIZA LINEATA (Striated Tit).—There is no difference between specimens from the island and those from the mainland. The little voices of this species were always heard among the glossy foliage of the sugar gum-trees, and were also noted in white gum timber inland.

SERICORNIS MACULATA (Spotted Scrub-Wren).—This possesses a very large bill (.51 in.), but otherwise shows no differences. The young are dressed in a browner mantle than the adult. The sides especially are rufous-brown, and the eyebrow, throat, and tail markings are very indistinct.

HYLACOLA CAUTA (Rufous-rumped Ground-Wren).—On all the uplands the thick shrubby vegetation gave cover to numerous pairs of this bird. Many had full-grown young, while two dome-shaped nests, rather small in proportion to the bird, were found ready for eggs. The male bird is a pretty songster, and always attracts notice by his strong-throated warbling. The female is less brightly marked, and the young is distinguished by a light fawn-coloured throat and chest, though it has the dark-centred feathers of the older birds.

EPHTHIANURA ALBIFRONS (White-fronted Chat).

GYMNORHINA LEUCONOTA (White-backed Magpie).—This was common along the coastal clearings. One specimen (in captivity) had a narrow black band across the back.

EOPSALTRIA (sp.).—A whistle of a Yellow-breasted Shrike-Robin was noted, but the species was not determined.

PACHYCEPHALA GUTTURALIS (White-throated Thickhead).—Several were seen inland in thick scrub by the creeks. On comparison with specimens from Western Australia, it proves to have a much darker yellow breast—as bright, in fact, as *P. gutturalis* of Southern Victoria. The quantity of black on the tail is made a distinguishing feature between the eastern and western forms, but the island specimen comes between. *P. occidentalis* has .75 inch (the tip) black, *P. gutturalis* 1.8 inch (two-thirds), and the specimen under notice 1.1 inch (one-half). This may be *P. intermedia* (North), but the reference has not been compared.

ACANTHORYNCHUS HALMATURINA (new sub-species) (Pale-coloured Spinebill).—This presents some variations worthy of note. Compared with the mainland form the tail has less white tip—.75 inch against 1.0—and the abdomen and throat are both much lighter in colour. The crown and collar are also much lighter—the latter, in fact, of a male specimen being as light as in a female of the mainland, which, of course, is always the lighter and smaller of the sexes. The colour of the abdomen of this new species is ochreous-buff, not rufous-brown.

The measurements are interesting:—

	Length.	Bill.	Wing.	Tail.	Tarsus.
Victoria	5.75	.9	2.75	2.5	.7
Kangaroo Island ...	5.3	.88	2.6	2.3	.74
Tasmania	5.2	.8	2.5	2.25	.75

The Tasmanian form, which was named by Gould *A. dubius*, is of all the darkest in plumage. The Kangaroo Island form, by its lighter colour and duller markings, has differentiated from the parent stock in a different fashion.

ZOSTEROPS HALMATURINA (new sub-species) (Island White-eye).—Here, too, is an interesting link. *Z. carulescens*, of South-eastern Australia, is characterized by its grey back, chestnut flanks, and greyish throat (sometimes tinged with greenish-yellow); *Z. gouldii*, of Western Australia, by its green back, greyish flanks, and yellow throat. The Kangaroo Island bird has grey back, greyish flanks, and yellow upper throat, thus linking one with another. The legs are of a very light horn colour, and not grey-black; the bill is heavier—.4 in. against .33 in.; wing is 2.25 in.; tarsus, .7 in. With it is quite a distinct variety.

MELITHREPTUS MAGNIROSTRIS.—This bird inhabits the sugar gums and the stringybark. It has been separated from *M. brevirostris* as a new species by Mr. A. J. North. It has a large bill (.57 in.), but *M. brevirostris* reaches .5 in. The colour of bill is black, while *M. brevirostris* is brownish-black. Specimens from Nhill, in North-western Victoria, are, however, jet black, like the Island form. As with all *Melithrepti*, the bill of the female sex is always smaller by about .05 in. There is a traceable dark band below the light collar which does not exist in the mainland birds, and the crown, ear coverts, back, and under tail coverts are all slightly darker. In life a bluish spot exists in the centre of the bare lower eyelid. This has not been noted in *M. brevirostris*, though it occurs with *M. leucogenys* of Western Australia.

GLYCIPHILA FULVIFRONS (Tawny-crowned Honey-eater).—On all the heath-covered tracts this bird is to be found. One nest was discovered containing four eggs, which, judging by the two types, were evidently laid by different birds. One bird procured showed slight variation from the mainland form. Only the back half of the crown was tawny in colour, the forehead being creamy-white, like the eyebrow.

PTILOTIS LEUCOTIS (White-eared Honey-eater).—This was found only in thick scrub near the river, from which it loved to ascend the gum-tree butts in search of food. It has a bill larger by .13 in. than the mainland bird, and is of a slightly darker tone.

PTILOTIS CRATITIA (Wattle-cheeked Honey-eater).—This beautiful bird is the only other representative of its large genus. It inhabits the scrub-covered moorlands not far from the sea, and the brush-like tea-tree that grows on the river flats. But in comparison with specimens from Nhill, Victoria, it is found of darker plumage, and the wings and tail are blackish instead of brownish. The bill, wing, and tarsus are all slightly larger. The male bird is distinguished by a blackish collar on the hind-neck and a darker crown.

LICHMERA HALMATURINA (new sub-species) (Lesser Crescent Honey-eater).—This was an unexpected bird upon the island, where it was common in the scrub along the river. It possesses a bill .15 larger than the Victorian specimens, and is of duller plumage. The striking wing-patch and also the colour on the tail is greenish-yellow, and not bright yellow. There is less white on the tail (.75 in. against .9 in.), no white centre to the chest, and the upper throat is but faintly streaked. The young bird has a short bill, but the sexes can be distinguished by the male, even in the browner youthful plumage, having a prominent greenish-yellow wing-patch. The female is throughout darker than the mainland female. Measurements are as follow:—

	Length.	Bill.	Wing.	Tail.	Tarsus.
<i>L. australasiana</i> , male	... 6.3	.6	3.05	2.75	.7
,, female	... 5.7	.58	2.62	2.35	.7

	Length.	Bill.	Wing.	Tail.	Tarsus.
<i>L. halmaturina</i> , male 5.7	.75	2.8	2.5	.8
" female 5.3	.72	2.62	2.2	.8

MELIORNIS NOVÆ-HOLLANDIÆ (? variety) (New Holland Honey-eater).—This showy bird was plentiful in all the scrubby country, and could often be seen perched on the flower-stalk of some grass-tree extracting nectar from the upright column. Comparing it with specimens from Victoria showed it to be little different in plumage, excepting that the chest striations were jet black, like the head. But from its longer and stronger bill it brings the Western Australian *M. longirostris* very close to its eastern congener. The bill of the former measures .78 to .8 in., of the latter .7 to .72 in., and of Kangaroo Island specimens .75 to .78 in.

ACANTHOCHLERA CARUNCULATA (Red Wattle-Bird).—One specimen examined has a bill 1.2 in. long, wing 6.4 in., both of which are larger than the mainland form, while it is without the prominent silky-white patch under the eye.

ACANTHOCHLERA MELLIVORA (Brush Wattle-Bird).—This was observed nesting about the quiet central lagoons only.

PARDALOTUS ORNATUS (Striated Pardalote).—On the scrub-covered moorlands a few very stunted gum-trees were found, some of them not more than 6 feet in height. They were covered with grotesque galls and insect ridden. In nearly every patch one of these little birds could be disturbed. It differs somewhat from Victorian specimens in markings. Those from the north-east of the State are much richer than those from the north-west. They have the lower back and rump rufous instead of olive, and, further, have the tips of all the primaries white. The Kangaroo Island specimens have one character of each. They are olive-coloured in the mantle, like the birds from north-west Victoria, but have all the tips of the primaries white, like the north-eastern forms.

PARDALOTUS XANTHOPYGIUS (Yellow-rumped Pardalote).—One bird was seen inland.

HIRUNDO NEOXENA (Swallow).

PETROCHELIDON NIGRICANS (Tree-Martin).

ANTHUS AUSTRALIS (Pipit).

ARTAMUS SORDIDUS (Wood-Swallow).—This bird was found through most parts of the island. Seeing it is supposed to be migratory, it should not differ much from specimens from other parts; but it does differ in being of a darker tone, and in having very little white on the tail tip.

ZONÆGINTHUS BELLUS (Fire-tailed Finch).—Of all species noted this was, perhaps, the one least expected. Several pairs were seen, both among the white gums flanking the inland lagoons and among the sugar gums on the river flat near its mouth. In company with *Ægintha temporalis* it was nesting in the under-scrub. A specimen procured, in comparison with one from Victoria, shows the upper surface not olive, but grey, like the under surface. The length of wing is 2.3 in. (longer than the other specimen referred to by .15 in.)

ÆGINTHA TEMPORALIS (Red-browed Finch).—These were found, too, in the thick brakes of bracken fern on the river flats.

HALCYON SANCTUS (Sacred Kingfisher).

CACOMANTIS FLABELLIFORMIS (Fan-tailed Cuckoo).

CHALCOCOCCYX BASALIS (Narrow-billed Bronze-Cuckoo).

TRICHOGLOSSUS NOVÆ-HOLLANDIÆ (Blue-bellied Lorikeet).—Among the blossoms of the "blue gums" (locally so called) on the river flats hundreds of these birds were feeding. The flowering eucalypts could

always be located from some distance by the chattering, whistling, and screeching noises of the 'Keets.

GLOSSOPSITTACUS PUSILLUS (Little Lorikeet).—A small party of this species was observed inland on some flowering white gums.

CALYPTORHYNCHUS XANTHONOTUS (Black Cockatoo).—These were in flocks of 20 to 50 some distance back from the coast, feeding upon the black-winged seeds of *Haakea* bushes, the strong pods of which they have no difficulty in cracking. This species in life is very handsome. There is a delicate pink-coloured naked membrane encircling the eyelids, which greatly enhances its appearance. Salvadori, in "Genera Avium," gives 13 to 14 inches as typical wing measurements of this species, and 15 to 16 in. for *C. funereus*. Two specimens from Kangaroo Island measure 15 in. and 15.5 in.

CALYPTORHYNCHUS VIRIDIS (Leach Cockatoo).

CACATUA GALERITA (White Cockatoo).—Nesting.

PLATYCERCUS ELEGANS (Crimson Parrakeet).—The commonest birds about our camp were of this species. Mature birds in their brilliant livery fed unheeding among the grasses.

PLATYCERCUS EXIMIUS (Rosella).—One specimen was reported towards Cape Borda.

PHAPS CHALCOPTERA (Bronze-wing Pigeon).

TURNIX VARIA (Painted Quail).—Nesting.

MICROTRIBONYX VENTRALIS (Black-tailed Native-Hen).

GALLINULA TENEBROSA (Black Moor-Hen).

PORPHYRIO MELANONOTUS (Bald-Coot).

FULICA AUSTRALIS (Coot).

BURHINUS GRALLARIUS (Stone-Plover).

HÆMATOPUS UNICOLOR (Sooty Oyster-catcher).

LOBIVANELLUS LOBATUS (Spur-winged Plover).

ÆGIALITIS CUCULLATA (Hooded Dottrel).

STERNA BERGII (Crested Tern).

GABIANUS PACIFICUS (Pacific Gull).

LARUS NOVÆ-HOLLANDIÆ (Silver Gull).

DEMIEGRETTA SACRA (Reef-Heron). Breeding.

PHALACROCORAX CARBO (Black Cormorant).

PHALACROCORAX HYPOLEUCUS (Pied Cormorant).

SULA SERRATOR (Gannet).

EUDYPTULA UNDINA (Little Penguin).

ANAS SUPERCILIOSA (Black Duck).

Principles Governing Movement in Cuckoos and Migration in Birds.

BY A. H. E. MATTINGLEY, MELBOURNE.

(Read before the A.O.U., Adelaide Session, 13th October, 1905.)

It is a matter of congratulation that my note on the actions of the young Cuckoo has started a controversy that can have but a beneficial and educative effect. Too many controversial points that have been published in *The Emu* have been passed by in silence.